Connecting Teacher Librarians For Technology Integration Leadership

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The changing information landscape and the highly technological environment of 21st century schools require that teacher librarians evolve as leaders in integrating technology to address the needs of a new generation of learners. Technology and digital resources must be integrated into learning experiences to ensure that students are prepared to succeed and meet the demands of a digital society. Teacher librarians, through working with teachers and students, have a vital role to play in making certain that students develop the 21st century skills that will enable them to use technology as a tool for learning and participate in a digital culture. This research investigated the current practice of accomplished teacher librarians in order to identify what factors were enabling some to thrive as technology integration leaders and what was hindering others. In the identification of these enablers and barriers several themes emerged and the most frequently identified enablers were related to relationships, or connections, that enabled technology integration leadership enactment for teacher librarians. This report of results focuses on those vital connections and implications for the profession.

Introduction

The highly technological environment of 21st century schools has significantly redefined the role of the teacher librarian. As technology permeates teaching and learning, teacher librarians are continually directed from professional standards and guidelines, as well as from theorists and researchers in this area, to assume leadership roles in integrating technology in schools (e.g., American Association of School Librarians, 2009; Everhart & Dresang, 2006; Hanson-Baldauf & Hughes-Hassell, 2009; McCracken, 2001; Shannon, 2002). Teacher librarians are in a unique position, due to knowledge of pedagogical principles and curriculum, paired with technology and information expertise, to serve as leaders and valuable assets through making meaningful contributions toward the integration of technology. The concern is that if technology and digital resources are not integrated into classroom learning experiences, it will result in students that are unprepared to meet the demands of a world where technology has become ubiquitous. Teacher librarians, through working with teachers and students, have a vital role to play in making certain that students develop the 21st century skills that will enable them to use technology as a tool for learning and for participating in a digital culture.

Despite the need, the demands, and opportunities for teacher librarians to accept critical technology leadership roles, the literature in this area is limited and there is a lack of...
empirical research investigations, leading to many teacher librarians that experience difficulty enacting this role in practice due to the confusion and ambiguity surrounding teacher librarians’ role in technology integration (Asselin, 2005; Asselin & Doiron, 2008; Everhart & Dresang, 2006; Hanson-Baldauf & Hughes-Hassell, 2009; Shannon, 2008). This research investigated the practices of teacher librarians in order to identify what factors were enabling some to thrive as technology integration leaders and what was hindering others. In the identification of these enablers and barriers, several themes emerged; the most frequently identified enablers were related to relationships, or connections, that enabled technology integration leadership enactment for teacher librarians.

**Review of the Literature**

Teacher librarians are expected to accept and fulfil numerous roles in daily practice; one of these roles is that of a leader in the area of technology integration. The ever-changing and advancing environment of 21st century learning has necessitated this evolution of the teacher librarian and presents opportunities for leadership.

**Leadership Directive**

The evolution of the role of the teacher librarian is present in the standards and guidelines that define and guide practice for teacher librarians. The guidelines from the AASL, American Association of School Librarians, (2009) reiterate the belief that teacher librarians should act as leaders within their school community to ensure that learners are equipped with the skills and knowledge they need to succeed in the technological society of the 21st century. Teacher librarians are charged, “to play a leading role in weaving such skills throughout the curriculum so that all members of the school community are effective users of ideas and information” (AASL, 2009, p. 46). It is this “weaving” or the integration of technology into the curricular areas where the teacher librarian, based on their knowledge of pedagogical principles, school curriculum, technology expertise, and collaborative experience, can serve as a leader and valuable asset to their schools (Asselin & Doiron, 2008; Everhart, Mardis, & Johnston, 2010; Johnston, 2011; International Society for Technology in Education (ISTE), 2010). Leadership plays a prominent role in these guidelines and is representative of a larger directive for the teacher librarian profession in general—to accept, embrace, and enact a leadership role, especially in the area of technology integration.

Furthermore, the ALA/AASL Standards for Initial Preparation of School Librarians (2010) approved for National Council for the Accreditation of Teacher Education (NCATE) frequently mention leadership and technology when describing the standards for the preparation of future teacher librarians. These standards assert that teacher librarians provide leadership, instruction, and collaboration in the use of instructional and informational technology and that teacher librarians move beyond the role of provider of technological resources to one who leads in the utilization or the integration of these resources for learning. So too do The Library Media Standards from the National Board for Professional Teaching (2010), which define “accomplished [teacher librarians as] visionary leaders in their schools and in the profession” (p. 14). These standards recognize that technologies are more than just resources, but tools that can be utilized by teacher librarians to connect and create meaningful instruction and to position teacher librarians as curriculum specialists and technology experts who can model technology integration and serve to provide professional development, and therefore leadership, in the integration of technology.

These leadership directives demand and document the need for teacher librarians to lead efforts of technology integration, yet the broad and general nature of these standards and guidelines offer little practical guidance for enactment. Practicing teacher librarians need further role definition along with explicit techniques or strategies for enacting the leadership role in technology integration.

**Leading Teachers and Students**

Technology has become a crucial element of teaching and learning, and the teacher librarian, as an information specialist and educator, has the potential to lead through technology
integration. Technology is transforming not only access to information, but also the skills students need to interact with and utilize it as well. As a result, information literacies have emerged as the new literacies and a critical issue in the field of education (e.g., Asselin, 2005; Asselin & Dorion, 2008; Kuiper, Volman, & Terwel, 2005; Kuhlthau, 2010; Livingstone, 2008). Information literacies or “the ability to find, evaluate, analyze, and synthesize information” (Smolin & Lawless, 2003, p. 571) go beyond simply knowing how to use technology tools to also include understanding how to apply them in learning (Asselin, 2005; Greenhow, Robelia, & Hughes, 2009; Kuhlthau, 2010; Kuiper, et al., 2005; Smolin & Lawless, 2003), as well as to create and communicate new learning (AASL, 2007; Leu, Kinzer, Coiro, & Cammack, 2004; Partnership for 21st Century Skills, 2009). Students are being bombarded with information in their academic as well as personal lives and must be taught how to evaluate, analyze, and utilize it effectively (Leu et al., 2004; Livingstone, 2008). As educators teacher librarians have the responsibility to prepare students for their future and “develop information skills that will enable them to use technology as an important tool for learning, both now and in the future” to actively, safely, and ethically participate in the digital culture (AASL, 2007, p. 2).

It has become critical for the teacher librarian to partner with teachers to address the needs of the 21st century learner to equip them with the necessary skills needed in order to thrive and participate in a digital culture (Asselin, 2005; Hanson-Baldauf & Hughes-Hassell, 2009; Hughes-Hassell & Hanson-Baldauf, 2008; Kuhlthau, 2010). The key to technology integration in education is that technology is used to enhance the learning experience and develop learners’ thinking skills, but it must also be aligned with the curriculum of the school and integrated into instruction, not as an add-on or afterthought (Hew & Brush, 2007). Students cannot be expected to benefit from technology if their teachers are neither familiar nor comfortable with it. Teachers need to be supported in their efforts to utilize technology through professional development opportunities. Ongoing professional development is necessary to help teachers learn how to use new technologies, but this must go beyond just using technology, expanding to learning the instructional strategies needed to integrate technology into their teaching, including practical applications (Ertmer, 2005).

Although teachers are excited about the potential instructional benefits of digital resources and technology, many are overwhelmed and need assistance and leadership in incorporating the most appropriate technology in an efficient and meaningful manner for both teaching and learning (Anderson & Dexter, 2005; Asselin & Dorion, 2008; Banister, Ross, & Vannatta, 2007; Brush & Sayre, 2007; Duke & Ward, 2009; Ertmer, 2005; Eteokleous, 2008; Glazer, Hannafin, Polly, & Rich, 2009; Hernandez-Ramos, 2005; Lei, 2009; Lemke, Coughlin, Garcia, Reifsnieder, & Baas, 2009; Oberg, 2003; Shattuck, 2005). Teacher librarians are the professionals in schools who can lead this effort. Teacher librarians can act as agents of change to support, encourage, assist, and facilitate the adoption of technologies into daily practice through leadership activities (Asselin & Dorion, 2008; Branch & Oberg, 2001; Hughes-Hassell & Harada, 2007). As a technology leader, the teacher librarian can keep staff abreast on new technologies, facilitate teacher understanding, and through staff development training. Most importantly, teacher librarians can help teachers understand the importance of integrating information technologies across the curriculum to create engaging and relevant learning experiences for students (AASL, 2009; Asselin, 2005; Asselin & Dorion, 2008; Branch & Oberg, 2001; Everhart et al. 2010; Hughes-Hassell & Harada, 2007; Johnston, 2011; Williams, 2004). Yet, despite the valuable contributions teacher librarians can make in implementing technology integration initiatives, they remain an untapped resource, due to the indefinite nature of this role.

Current Relevant Research
The most current research to date in this area is by Everhart et al. (2010) to define and investigate the leadership practices of the teacher librarian in technology integration. The School Library Media Specialist Technology Integration Survey (Partnerships Advancing Library Media Center [PALM], 2009) developed through their research is the first instrument to define and investigate the teacher librarian’s technology integration leadership practices. Results conclude that National Board Certified teacher librarians feel committed to and have experienced success in technology leadership with students to a great extent and with
teachers to a lesser, but not insignificant, extent. Yet, teacher librarians report much lower levels of involvement in technology leadership activities outside of their school building, such as district-wide policymaking, and information sharing activities with peers and community members.

The 2009 research by Hanson-Baldauf and Hughes-Hassell to explore teacher librarians’ perceived competencies with Web 2.0 technologies, usage of Web 2.0 technologies in their own teaching, and the barriers they believe impede the use of Web 2.0 technologies in teaching and learning serves as an initial step in the investigation of teacher librarians and technology integration. Findings include that a significant number of teacher librarians do not feel competent with “emergent technologies such as social-networking and file-sharing tools” (p. 6), the majority “only rarely or occasionally used podcasts, wikis, blogs, Web design tools, and electronic whiteboards” (p. 6), and emergent technology tools and applications are infrequently used. Teacher librarians agreed on the importance of integrating technology into their instruction, but fewer felt “well prepared” to do this (p. 8).

The limited research in this area also supports the contention that teacher librarians must embrace their leadership role in technology integration. A compilation of recent state studies (Scholastic, 2008) examines the teacher librarian and the impact on student achievement and identifies two roles of the teacher librarian that impact student achievement: leader and technology facilitator. In those studies, teacher librarians who exhibit leadership were more likely to plan and teach cooperatively with teachers, provide training for teachers, and take responsibility for technology integration (Lance, Hamilton-Pennell, & Rodney, 2000; Lance, Rodney, & Hamilton-Pennell, 2000). Other findings include a connection between leadership and collaboration, in that classroom teachers were more willing to collaborate with the teacher librarian if she or he had taken the initiative to become an assertive, involved leader in the school (Rodney, Lance, & Hamilton-Pennell, 2002) and that schools performed best where both principals and teachers perceived the teacher librarian as a school leader (Lance, Rodney, & Russell, 2007). Additionally, research indicates that teacher librarians provide instruction and help students acquire information and technology skills necessary to succeed in the information-saturated world of the 21st century and, in schools with “best practice library media programs,” the teacher librarian “acts as an innovator, transformation agent, and a technology integration leader” (Smith, 2006, p. 16).

The school library is one of the most technology-rich spaces in many schools, with the teacher librarian serving as one of the school’s experts in information technology integration (Massey, 2009); therefore, technology integration leadership has emerged as an essential competency for 21st century teacher librarians (Shannon, 2002). Despite the abundance of literature suggesting the need for and the importance of the teacher librarian to be a proactive leader in technology integration, this role is one that has been largely ignored in the research arena and remains undefined for school administrators, for teachers, and for teacher librarians themselves (Asselin, 2005; Everhart & Dresang, 2006; Shannon, 2008).

**Methodology**

This study, based on educational leadership theory, illuminates the role of teacher librarians in technology integration within an educational context. While there has been no specific theory developed for the teacher librarian as an educational leader, the field of educational leadership contributes a wealth of theories and models for the leadership role in schools. In recent literature, teacher leadership has been conceptualized as a distributed form of leadership that involves interactions among formal and informal leaders within a particular situation over time to influence change. This research makes the assumption that teacher librarians operate as teacher leaders within a school.

**Theoretical Framework**
The ever-evolving complex technological environment of 21st century schools and the new leadership capacities that accompany it have signified a paradigm shift in educational leadership, and research has shifted to focuses on how principals, along with other school leaders can work together for leadership (Anderson & Dexter, 2005; Kowch, 2009). Distributed leadership provides an approach that proposes that leadership tasks are not all the sole responsibility of one individual leader, but that anyone can contribute through collaboratively pooling their expertise, where teachers can become leaders at various times (Muijs & Harris, 2007; Spillane, Halverson, & Diamond, 2004). As a teacher with unique expertise, this type of leadership is particularly appropriate for the teacher librarian.

Distributed leadership shifts the focus of analysis from leaders to leadership activity (Gronn, 2000; Spillane et al., 2004) and expands the study of leadership to include the leadership practices of multiple individuals, both formal leaders and informal leaders (Spillane, 2006). A fundamental proposition of distributed leadership is that “the situation is not simply a context within which school leaders practice; it is a defining element of practice” (Spillane, 2006, p. 22), and therefore it is necessary to understand how these aspects enable and constrain leadership practice. The proposition that asserts that aspects of a situation can either enable or constrain leadership practices led to the research questions: “What enablers or supporting factors do accomplished teacher librarians perceive in enacting the role of leader in technology integration? and “What barriers or constraining factors do accomplished teacher librarians perceive to enacting the role of leader in technology integration?”

Method
The method of secondary analysis was utilized to examine existing survey data that adequately addressed the research questions for this research employing unused survey data from two open-ended questions taken from the School Library Media Specialist and Technology Integration Survey (PALM, 2009).

Procedure
Secondary analysis is a systematic method with procedural and evaluative steps to be followed, just as there are in collecting and evaluating primary data. The advantage is that the data already exist in some form and can be evaluated for appropriateness and quality in advance of actual use (Stewart & Kamins, 1993); however, it is important to identify and evaluate data in a “stepwise fashion” in order to clarify and address any issues before analysis begins.

In order to ensure congruency, appropriateness, and quality of the primary study and the resulting dataset, the researcher employed Stewart and Kamins’ (1993) evaluative process before finalizing data selection. This process for evaluating a dataset involves six questions: (a) what was the purpose of this study; (b) who was responsible for collecting the information; (c) what information was actually collected; (d) when was the information collected; (e) how was the information obtained; and (f) how consistent is the information obtained from one source with information available from other sources. In answering these questions the researcher utilized documentation of the primary study, information from the original study found in publication, and consulted the investigators from the primary study.

After a thorough examination of the original survey method including the instrumentation, sampling, and procedures, the researcher determined that the resulting dataset from this research met her research needs and served her research purpose. This research utilizes the data obtained from the two open-ended questions, which asked respondents “Think back about the activities in the preceding statements, specifically those in which you are fully involved. What enables you to be involved at that level?” and “Again, think about those activities addressed earlier. Are there any activities in which you’d like to be more involved than you are right now? If so, please tell us about the barriers that hinder your involvement” (PALM, 2009).

Since these questions asked participants to reflect back on the practices described in the survey (technology integration leadership practices), the responses to these questions provided the variables of interest to the researcher, those factors that are perceived as enablers or barriers to enactment of the technology leadership role. The use of open-ended
questions was essential in this research because in open-ended questions respondents are asked to provide their own personal answers, which can provide elaboration on or insights into understanding responses from the closed-ended questions and yield useful information when researchers need to explore issues that do not have a finite or predetermined set of responses as is the case in this research (Dillman, Smyth, & Christian, 2009).

Description of the Sample
The participants in this research were the same as those documented in the primary research: National Board Certified teacher librarians practicing in various schools across the United States at the elementary, middle, and high school levels. This sample was chosen for two reasons: National Board Certified teacher librarians have successfully completed a rigorous certification process that designates them as leaders in their field, and they have shown their technology integration abilities in adopting and adapting technologies as teaching and learning tools and therefore can provide an in-depth look at technology integration leadership practices.

The 295 usable survey responses from the primary study is the same sample utilized in this research, which is based on those respondents who answered the two open-ended questions addressing the enablers and barriers to the enactment of the leadership role in technology integration. Upon obtaining the original data it was found that 279 (94.5%) participants that answered the enabler question and 263 (89.1%) respondents that answered the barrier question.

In order to extract the specified enablers and barriers from the text of the open-ended questions, the researcher performed content analysis. The researcher utilized an a priori coding scheme of exhaustive and mutually exclusive categories taken from the conceptual framework. The researcher utilized the conceptual framework The Four Domains of Supports and Barriers to Teacher Leadership (Zinn, 1997) to code the data into categories. This framework explicitly lists descriptor indicators within each category of specific enablers and barriers that reside in each domain. The data was coded by the most finite enabler and barrier descriptor and by broader category based on the conceptual framework and the supporting literature.

The researcher utilized documentation from the primary study to identify and evaluate how the issues of reliability and validity were addressed in the primary survey data collection method, but researcher also undertook actions based on her own research questions to further examine the issues of validity and reliability. To guard against the introduction of subjective bias in the coding and analysis of data and increase reliability the researcher conducted intra-coder reliability testing by coding the data at three separate points in time and inter-coder reliability testing with three other coders to code the data in accordance with the codebook. The results of both provided acceptable agreement percentages of or close to 100%. Since this instrument is newly developed, reliability is one of the limitations in this research. The original research team did field-test the online web-based survey with a small group of practicing teacher librarians before it was widely distributed. The researcher then utilized SPSS (Statistical Package for the Social Sciences) to calculate frequency distribution tables for the enablers and barriers in each of the four domains (Zinn, 1997) and to identify the frequencies of specific enablers and barriers within each domain.

Results
The population used for this study included 2100 teacher librarians in the United States who were National Board Certified as of April 2009 and since the purpose of the primary survey was to identify the leadership practices of teacher librarians in technology integration, this survey only targeted those teacher librarians practicing within the school building and not those at the district level. Respondent demographics mirror the general population of teacher librarians (Kenney as cited in Everhart et al., 2010). The majority, 98.5% of participants, were Caucasian women (n=290) averaging 50 years of age with 14 years of experience as teacher librarians. Seventy one percent (n=210) formerly were classroom teachers. Almost all (n=291 or 98.7%) worked full-time in one school, nearly 75% (n=221)
had full-time paid support staff, and only 13% (n=39) had a fixed schedule. Very few participants reported full-time (n=123 or 42%) or part-time (n=45 or 15%) technology support staff (Everhart et al., 2010), and the technology available in these school libraries was above national averages (Goldring, 2009).

This report of the results focuses on Domain One: Personal and Interpersonal Relationships. Zinn (1997b) defined the parameters of this domain as encompassing those interpersonal relationships, both attitudes and behaviors, which can positively and negatively strongly influence teacher leadership. Zinn (1997b) found that the “success or failure of teacher leadership depends in large part on the effectiveness or personal support systems, mutual respect, and interdependency” (p. 17).

**Enablers**

Table 1 presents the frequencies and percentages associated with the enablers in Domain One. The most frequently occurring enabler was principal support (n=70), and the least frequently occurring was a full-time instructional technologist (n=7). The enablers reported by respondents in this domain deal with relationships with others such as teachers and their willingness to collaborate, positive relationships with principals who provide support and encouragement, and support of other teacher librarians.

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<tr>
<th>Enablers</th>
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<tbody>
<tr>
<td>Supportive principal</td>
<td>70</td>
<td>37.23</td>
</tr>
<tr>
<td>Collaborative teachers</td>
<td>33</td>
<td>17.55</td>
</tr>
<tr>
<td>Professional organizations</td>
<td>33</td>
<td>17.55</td>
</tr>
<tr>
<td>Supportive district personnel</td>
<td>17</td>
<td>9.04</td>
</tr>
<tr>
<td>Respected and valued by staff</td>
<td>16</td>
<td>8.51</td>
</tr>
<tr>
<td>Supportive teachers</td>
<td>12</td>
<td>6.38</td>
</tr>
<tr>
<td>Collaborative instructional technologist</td>
<td>7</td>
<td>3.72</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>188</td>
<td>100.00</td>
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Note. The % symbolizes the percentage that the specific enabler was found in relation to all the total identified enablers in this domain (n=188).

Professional organizations were noted as the second most frequent enabler by respondents (n=33) and the researcher chose to include it in this domain based on her knowledge of the population, the context of the responses, and the indicator from Zinn (1997) that describes a mentoring and supportive relationship from respected colleagues. Responses that listed professional organizations commented on support, networking, and mentors.

Collaborative teachers (n=33) were described by respondents as teachers who were willing to work with them and collaborate on technology infused lessons as a team. Respondents also commented on “supportive teachers” (n=12), which is designated as different from collaborative teachers according to Zinn’s framework and the teacher leadership literature. Enablers coded as supportive teachers included those responses that spoke of teachers providing a personal support system supporting the teacher librarian’s efforts of technology integration and leadership and respondents mentioned a sense of value and respect (n=16) from other faculty members as an enabler as well.

Respondents also noted a supportive relationship with district level personnel (n=17). A district school library supervisor is defined as an administrator at the central district level that provides district leadership for all of the school library programs within the district. The researcher a chose to categorize “support from district media/library personnel” in this domain as well, due to the indicator from Zinn (1997) that describes a mentoring, supportive, and a positive working relationship with administrators.

**Barriers**
Table 2 presents the frequencies and percentages associated with the individual barriers within Domain One, which encompasses relationships with others and how their attitudes and behaviors can negatively influence leadership enactment. A competitive relationship with instructional technologists (n=21) was noted most frequently and the least frequently occurring barrier was a lack of support from teachers (n=10). The barriers found in this domain include a competitive relationship with school technology personnel; opposition, both passive and aggressive, from principals; and a lack of support from teachers, including a lack of willingness to collaborate and competitive relationships. The competitive relationship with the instructional technologist, who is defined as a building level person who works with teachers to teach or integrate technology in the curricular areas, is not a barrier that is found in the teacher leadership literature specifically, but competitive relationships with other teachers is defined as a descriptor in this Domain by Zinn (1997b), and therefore the researcher chose to classify this same competitive relationship here.

Table 2. Frequency of Leadership Enactment Barriers in Domain One: Personal and Interpersonal Relationships

<table>
<thead>
<tr>
<th>Barriers</th>
<th>f</th>
<th>%</th>
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<tr>
<td>Competitive instructional technologist</td>
<td>21</td>
<td>31.34</td>
</tr>
<tr>
<td>Uncollaborative teachers</td>
<td>19</td>
<td>28.36</td>
</tr>
<tr>
<td>Unsupportive principal</td>
<td>17</td>
<td>25.37</td>
</tr>
<tr>
<td>Unsupportive teachers</td>
<td>10</td>
<td>14.93</td>
</tr>
<tr>
<td>Total</td>
<td>67</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Note: The % symbolizes the percentage that the specific barrier was found in relation to all the total identified enablers in this domain (n=67).

Respondents spoke of troubled relationships with teachers that served as barriers and “uncollaborative teachers” (n=19) were found to be the second most frequently occurring barrier named in this domain. Respondents spoke of teachers who were unwilling to collaborate, preferred to work on their own, and did not want to or show any interest in working together in order to integrate technology. The barrier “unsupportive teachers” (n=10) refers to teachers who either passively or aggressively opposed teacher librarian respondents in their efforts of technology integration leadership, did not make time, and were resistant to change.

Conclusion and Implications

Relationships were found as frequently occurring enablers for teacher librarians enacting a leadership role in technology integration, yet there are relationships that can also constrain leadership enactment (Katzemeyer & Moller, 2009; Lieberman & Miller, 2005; Little, 2003; Zinn, 1997). The relationships identified as frequently occurring factors in teacher librarians’ technology integration leadership enactment include: the principal, the district administrator, teachers, other teacher librarians, and instructional technologists.

Principals

The most frequently cited enabler in teacher librarians enacting a leadership role in technology integration is a supportive principal. This finding aligns with research from multiple studies from the teacher librarianship literature that identify principal support as vital (e.g., Church, 2008; Hartzell, 2002; Lance, Rodney, & Russell, 2007; Shannon, 2009; Todd, 2005). When principals have a positive working relationship with teacher librarians they can serve as advocates and a source of support to promote teacher librarians as an instructional partners and encourage teachers to collaborate (Oberg, 2009). The quality of the relationship between the principal and the teacher librarian impacts the school library and the librarian’s place within the school (Church, 2008; McCracken, 2001; Oberg, 2009; Oberg, Hay, & Henri, 2000). Respondents commented on encouragement they received from their principal in assuming a leadership role and responsibilities, such as “I have a principal who supports my position whole-heartedly. He encourages me to continue to grow in my
knowledge of technology and promotes me as a technology leader.” Others described respectful relationships where leadership was shared and their opinion was valued, with responses such as “my principal values my opinion in technology-related matters” and a “supportive principal who appreciates and uses my experience” as enablers to technology leadership enactment.

This finding is in alignment with the teacher leadership literature that demonstrates this same connection to principal support. Supportive principals can provide encouragement for teachers to take on an active role beyond the classroom to enable their development as teacher leaders while providing teachers with supportive feedback through open communication. When principals validate teachers by recognizing the contributions of their work, it makes teachers feel valued and may serve to propel them to leadership involvement (Buckner & McDowelle, 2000; Crowther, Kaagan, Ferguson, Hann 2002; Katzenmeyer & Moller, 2009). According to Zinn (1997), administrators’ relationships with teachers are a supporting factor, as principals often publicize leadership opportunities, encourage teachers to take advantage of them, and seek out teacher leaders’ opinion in important school matters (Beachum & Dentith, 2004; Katzenmeyer & Moller, 2009). The quality of a principal’s relationship with teachers is correlated with teachers’ willingness to participate in teacher leadership: the more open, supportive, and facilitative a principal is with teachers, the more willing they are to take on a leadership role (York-Barr & Duke, 2004). Not only do administrators provide verbal encouragement, they often demonstrate support by removing other barriers to teachers’ leadership and even push teachers into new leadership roles (Smylie, Conley, & Marks, 2002).

This research finds that the school principal’s influence in enabling leadership enactment is overarching and considerable. The importance of school principals and the influence they have on teacher librarians assuming a leadership role is critical in the area of technology integration as well. Research has found that a school’s technology planning, leadership, professional development, curriculum alignment, technology use, and perceptions of technology’s effect on learning could all be attributed back to school administrators (Anderson & Dexter, 2005; Kowch, 2009). These findings reflect that school principals enable teacher librarians to assume leadership responsibilities by promoting them as leaders, recognizing their expertise, and providing encouragement.

Aligning with the teacher leadership literature, opportunities for leadership was one of the most frequently named enablers and, conversely, one of the most frequently named barriers was the exclusion from leadership opportunities. This research did not identify unsupportive principals as a frequent barrier to technology integration leadership as Zinn’s research did, but this may be attributed to the fact that while many of the identified barriers such as funding, scheduling, staffing, technology resources, and opportunities for leadership are not explicitly related to the principal, they could be indirectly attributed to the principal. The implication for teacher librarians in the identification of this enabling relationship with school principals is that it demonstrates that teacher librarians need to develop strategies to cultivate such relationships with the school principal.

**District Administrators**

Administrators other than the school principal serve as enablers for teacher librarians in enacting technology integration leadership. Participants frequently spoke of a district school library coordinator or supervisor who facilitated their efforts in technology integration leadership, commenting that the “district level media personnel in our school district is the driving force for [teacher librarians] to be involved with technology as a tool for improving instruction.” This finding is notable because of the very limited reference in the teacher leadership literature of other system administrators, such as curriculum coordinators or department chairs, who provide support or encouragement for teacher leaders (Frost & Durrant, 2003; Katzenmeyer & Moller, 2009; Ritchie & Woods, 2007; Ryan, 1999; Silva, Gimbert, & Nolan, 2000). Additionally, the literature on the role of the district school library administrator is limited, but is mentioned in that they serve as facilitators for communication and garnering principal support for teacher librarians (Baumbach, 2003; Hughes-Hassel & Hanson-Baldauf, 2008; Oberg, 2006; Shannon, 2009; Underwood, 2003).
Respondents commented on the benefit of having this administrator represent their interests in district-wide decision-making with statements such as “our director of libraries understands that the library is and should be on the leading edge of technology and information literacy. She is always included in decisions and allows [building level teacher librarians] to serve on district committees to give input.” A strong district library administrator can represent the interests of school library programs and teacher librarians at the district level through giving voice to concerns, addressing issues with decision-makers, and positioning teacher librarians to lead. District administrators can also coordinate district-wide professional development and purchasing, and this consistency and support across a district may be key to teacher librarians developing as leaders. The identification of the district library supervisor as an enabler is a relationship that has emerged from this research and appears to be unique to teacher librarians and warrants further investigations.

**Teachers**

Collegial relationships with teachers serve as enablers that facilitate teacher librarians’ enactment of a leadership role in technology integration. This finding aligns with the literature that this relationship is necessary in facilitating technology leadership involvement and highlights the importance of collegial relationships with fellow teachers (Katzenmeyer & Moller, 2009; York-Barr & Duke, 2004; Zinn, 1997). The presence of strong collegial relationships between teachers is a crucial enabler for teacher leaders because these relationships allow for sharing of ideas, working toward common goals, supporting one another, and guidance through a common sense of purpose (Tschannen-Moran, 2009).

This same relationship of support, a feeling of respect, and a sense of value are vital enablers in facilitating teacher librarians enacting leadership in technology integration. Respondents spoke not only of teachers supporting them in their efforts through serving as “critical friends,” but also through respecting and valuing their contributions to technology integration efforts and in their willingness to collaborate with them. For example, one respondent shared that “a lot of support from the faculty, especially in their willingness to allow my input into their classroom teaching strategies” was what enabled them to function as technology integration leaders. York-Barr and Duke (2004) found recurring evidence of teacher leadership associated with increased teacher collaboration, in that “developing trusting and collaborative relationships is the primary means by which teacher leaders influence their colleagues” (p. 288) or serve as leaders. Respondents mentioned that their involvement in technology leadership practices was facilitated by the respect and value their efforts received from colleagues, with comments such as “faculty and students value my input. I go to classrooms, and I email new technologies to keep patrons abreast.” These supportive relationships lead to a feeling of trust and a sense of self-value enabling leadership enactment (Beachum & Dentith, 2004). Teacher leadership fundamentally depends on the relationships with other teachers and collaboration is an important element of effective leadership and a willingness to work with colleagues is necessary for effective teacher leadership to emerge (Beachum & Dentith, 2004; Katzenmeyer & Moller, 2009; Silva et al., 2000; York-Barr & Duke, 2004; Zinn, 1997).

The importance of relationships with colleagues is echoed in the teacher librarianship literature. Cultivating accepting and trustful relationships with teachers is vital for enacting leadership (McCranken, 2001; Oberg, 2009; Oliver, 2003; Slygh, 2000; Underwood, 2003). Teacher librarians who exhibit leadership are more likely to plan cooperatively with teachers, teach cooperatively with teachers, provide training for teachers, and take responsibility for technology integration (Lance, Rodney, & Hamilton-Pennell, 2000). This research demonstrates this same connection—that collaborative relationships with teachers facilitate and serve as a critical support accomplished teacher librarians’ involvement in technology integration leadership. Aligning with other areas of teacher librarianship, this research reinforces that collaborating with teachers is a vital part of the job for teacher librarians and an enabler for technology integration leadership.

Uncollaborative and unsupportive teachers were frequently cited as barriers that constrain teacher librarians in enacting a leadership role in technology integration. Respondents confirmed previous research, identifying teachers that are unwilling to
collaborate and that are resistant to change as barriers to technology integration leadership, with comments such as “teachers in the building … prefer to work alone. It is very hard to work with teachers that have that mind set” and “a lack of motivation to learn and use new technologies by some faculty members is a major source of frustration.” Some of this resistance to collaboration may be attributed to the increased demands on teachers to meet yearly accountability measures and the pressure for higher test scores, so that it is sometimes difficult for a classroom teacher to find time to work with the teacher librarian (Hoppe, 2011). This finding is also consistent with the research of McCracken (2001) who found lack of support and interest by teachers as a major challenge that teacher librarians experienced in expanding their leadership roles within schools. A critical implication for practicing and future teacher librarians is the identification of these enabling collaborative and supportive relationships with teachers found in this study that reflect once more that working with teachers is a crucial aspect of the job of teacher librarians. It is necessary to develop approaches for fostering these relationships that will support in enabling technology integration leadership practices.

**Other Teacher Librarians**

Professional organizations are enablers in teacher librarians’ enactment of a technology integration leadership role. This finding is important because professional organizations in general are cited infrequently in the existing research from the fields of both teacher librarianship and teacher leadership. The most recent ALA/AASL Standards for Initial Preparation of School Librarians (2010) state the expectation that teacher librarians “become active contributors in education and information professional organizations and use publications, conferences, and virtual professional development experiences and opportunities to engage in social and intellectual networks that address best practice in school libraries” (p. 13). Not only do professional organizations provide support for teacher librarians through relationships with other teacher librarians, but this research finds that professional growth opportunities from professional organization activities such as conferences and publications serve as enablers as well.

Professional organizations as an enabler in facilitating teacher librarians in their technology integration leadership efforts were evident in respondent answers. One respondent expresses that “through diverse professional involvement in district, state[,] and national level professional organizations, I have gained exposure to different communities and am able to discuss and implement new strategies for technology integration.” Teacher librarians who have access to a strong and active network of other teacher librarians are more committed to ongoing professional education, mentoring, advocacy, and policy development than those who do not (Dekker as cited in Oberg, 2006).

These findings reveal the importance of professional organizations as providing a network of fellow teacher librarians to learn from and share with as an enabler for teacher librarians in enacting leadership in technology integration. Respondents identify a mentoring and supportive relationship from respected colleagues and professional organizations and the “strong community of librarians” they provide as an enabler as frequently as they did collaborative teachers. Branch and Oberg (2001) found that leadership involves participating in meetings with other teacher librarians beyond the district through association work with other library professionals in the community. There is often only one teacher librarian in the building, and this finding demonstrates the importance of developing relationships with other teacher librarians that share the same interests, that can act as mentors, and that can provide support in order to facilitate teacher librarians’ involvement in technology integration leadership. There is very little research to examine teacher librarians’ membership in professional organizations, and additional research to explore the possible association between relationships with colleagues, professional development, expertise, and leadership enactment is warranted.

The implication for practicing teacher librarians is the importance of maintaining relationships with other teacher librarians through professional organizations. Not only do professional organizations provide support for teacher librarians who often are isolated as the sole library professionals in their school buildings, but professional growth opportunities from professional organization activities such as conferences were noted by
respondents as a valued type of professional growth needed to lead technology integration efforts. This need is also reflected in the findings of Everhart et al. (2010) in that teacher librarians seem to have unrealized leadership potential in sharing their knowledge and advocating for technology with the profession and in the community. Practicing teacher librarians need to become active in professional organizations to garner this support, and the importance of support from colleagues should be also be instilled in school library preparation programs through encouraging students to join and take an active role in professional organizations.

**Instructional Technologists**

A competitive relationship with the instructional technologist was the most frequently occurring relationship barrier constraining accomplished teacher librarians in enacting a leadership role in technology integration. A collaborative instructional technologist is found to be an enabler, but only in a small number of cases. This is an emerging relationship as schools search for ways to deal with the ever-expanding presence of technology in schools.

There is very limited research in this area, but the existing studies (Nguyen, 2007; Seavers, 2002) urge teacher librarians and instructional technologists to collaborate and work as a team to benefit students and teachers. Seavers (2002) found that most teachers perceived the instruction technology specialist as the person responsible for the hardware, software and network issues as well as being the person responsible for training teachers in the integration of technology into the curriculum and for teaching students. As this role has become even more instructionally focused, the boundaries between the role of teacher librarians and instructional technologists have become unclear. In order to collaborate, it is important for these professionals to develop an understanding of their roles and in which areas they overlap.

Respondents commented on a lack of control in technology decision-making, being excluded from working with teachers when technology was involved, not being allowed to conduct technology related staff development, and having technology taken away from them. One respondent states, “there is a major barrier between me and the technology facilitator as far as being able to work collaboratively. The roles are currently blurred and create conflict.” As the lines blur between these two roles, teacher librarians may feel threatened by instructional technologists. Teacher librarians were once the sole person responsible for technology in the schools, but now the increased presence of instructional technologists have resulted in teacher librarians who are no longer seen as the technology experts in the school and are excluded from technology decision-making. A competitive relationship may arise from territorial battles over technology as a resource and access issues. Instructional technologists are often given an increased level of authority over technology and serve as gatekeepers who restrict even teacher librarians’ access by controlling filters and passwords. As this instructional technologist role expands to include working with teachers to integrate technology into the curricular areas, teacher librarians may feel that they have to compete to retain their place as a leader in technology integration. Further research is needed into examining the roles of teacher librarians and instructional technologists to determine responsibilities, overlap, effectiveness, role clarification, and collaboration opportunities.

Technology has become a vital part of the teaching and learning experience, and students have to be taught the skills they need to prepare them to meet the demands of a digital society. Teacher librarians are in a prime position to embrace this opportunity, but yet the ambiguity surrounding the technology integration leadership role has led to teacher librarians being uncertain how to perform this role in practice. The primary implication of this research is the identification of the enablers and barriers that can facilitate and constrain teacher librarians’ involvement in technology integration leadership. This research informs practice by furthering the understanding of this role for practicing teacher librarians who seek to enact or expand their leadership role in technology integration and highlights the importance of developing and cultivating these necessary relationships that enable technology integration leadership.
References


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